

CONTINUOUS ACCEPTANCE DURATION LIMIT (CADL) REVIEW

MEETING NAME Imbalance Settlement Group

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Purpose of paper For Decision

Classification Public

Summary The Continuous Acceptance Duration Limit (CADL) is a pricing parameter used to identify short duration Bid Offer Acceptances (BOAs) that are most likely to be associated with system balancing actions and potentially excluded from the Energy Imbalance Price Calculation.
The limit has been set at 15 minutes since its introduction in 2001.

The last review of the CADL was performed in March 2010, following the implementation of P217A – Revised Tagging Process and Calculation of Cash Out Prices. We have reviewed the CADL value and our analysis shows that the current limit, 15 minutes, remains suitable.

The Imbalance Settlement Group (ISG) is invited to note the content of the analysis and agree that ELEXON will conduct the next scheduled review in two years' time.

1. Background information

- 1.1 The Continuous Acceptance Duration Limit (CADL) is used to identify short-duration Bid Offer acceptances (BOAs) that are most likely to be associated with system balancing actions and potentially exclude them from the Energy Imbalance Price calculation. The limit was set at 15 minutes when introduced in 2001 and has remained at 15 minutes following each review.
- 1.2 Modification P217A 'Revised Tagging Process and Calculation of Cash Out Prices' altered the operation of CADL in the pricing calculation. In this paper we review the period from 5 November 2009 to 31 January 2010, which considers data since the introduction of Modification P217A.
- 1.3 The Transmission Company – National Grid – has provided analysis on the count and volume of acceptances flagged by CADL for various hypothetical levels of the parameter and the current value of 15 minutes.

2. CADL Review Methodology

Transmission Company Analysis

- 2.1 The Transmission Company analysis distinguishes between Energy Balancing and System Balancing activities by associating System Balancing actions to plants with 'Fast Reserve actions' and Energy Balancing actions with other types of plants.
- 2.2 The methodology defines 'Fast Reserve' action plants that matches, individually or as a group, the following minimum criteria to be eligible are:
 - Initial ramp rate is greater than or equal to 25 MW/min; and

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- BOA size is greater than or equal to 50 MW; and
 - Start point is greater than or equal to the unit's Stable Export Limit (SEL), unless it's a hydro or OCGT station.
- 2.3 It is worth noting that, during the review period, four Hydro Electric Balancing Mechanism Units (BMUs) accounted for 99% of 'fast reserve' BOAs and five gas BMUs accounted for the remaining.
- 2.4 The Transmission Company has provided an analysis on the volume flagged by CADL in the Energy Imbalance Price calculation, defining if it was either considered as 'fast BOAs volumes' or 'non-fast BOAs volumes'.
- 2.5 The analysis also includes a view of the count and volume of acceptances that would have been flagged by various hypothetical levels of CADL, including the current value of 15 minutes. The aim is to find the most appropriate level of CADL to be able to flag the largest number of 'fast reserve' BOAs actions whilst leaving other actions unflagged. The Transmission Company analysis is included as Attachment A.

3. Analysis

- 3.1 The table in section 2 of the analysis provided by the Transmission Company (see Attachment A) highlights the impact various levels of CADL could have on the BOAs Volume flagged, including both fast and non-fast BOAs reserve volumes. The applied values, increasing from 10 to 20 minutes duration, proportionally correspond to an increase in BOAs volumes flagged. The analysis points out the fact that, reducing the duration from 15 to 10 minutes would proportionally reduce the proportions of Fast and Non-fast BOAs being flagged when increasing the duration from 15 to 20 minutes would proportionally increase these proportions.

Table 1: Volume of Fast and Non-Fast Reserve BOAs flagged for duration from 10-20

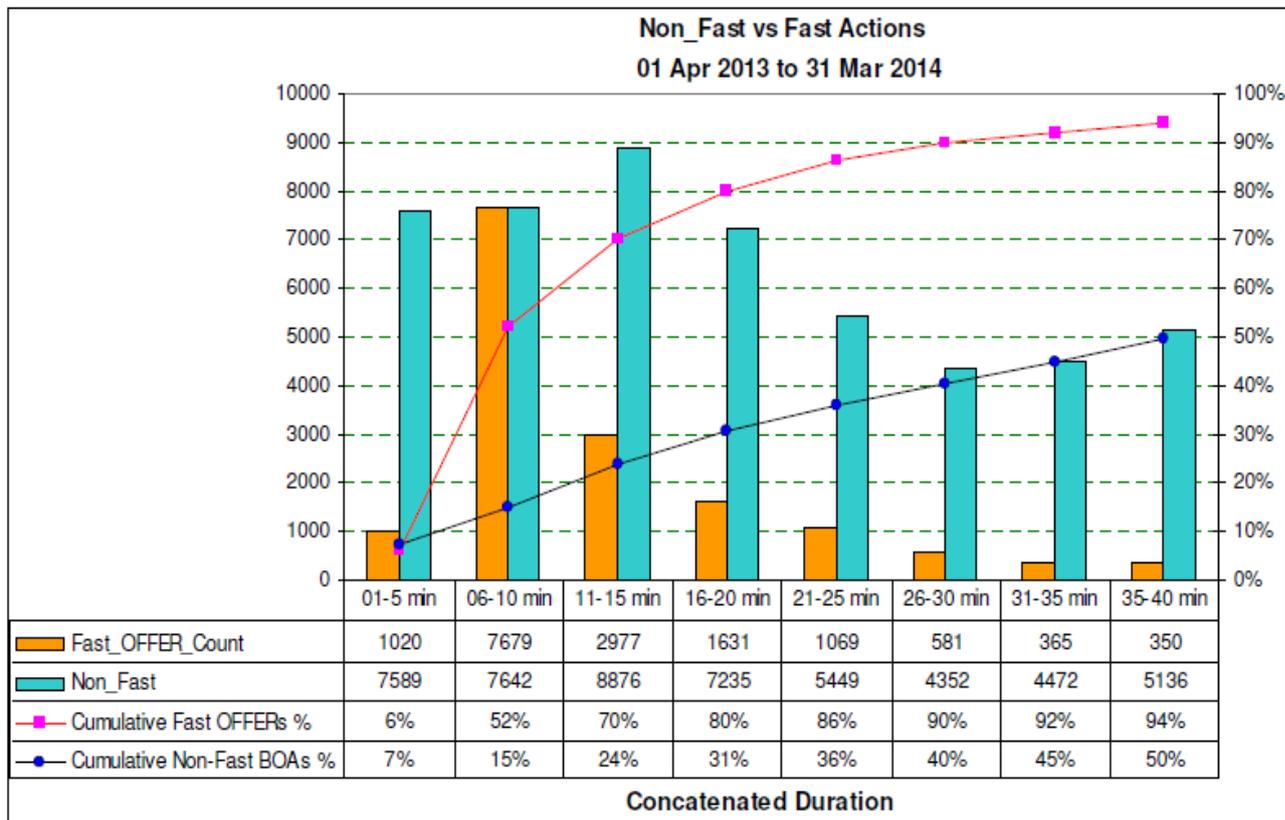
Duration (min) (cumulative)	Volume flagged by CADL (01 Apr 2013 to 31 Mar 2014)					
	Fast BOAs (MWh)	All BOAs flagged (MWh)	Fast BOAs as % of All BOAs flagged	All BOAs flagged as % of All BOAs	Fast BOAs flagged as % of All BOAs	Non Fast BOAs flagged as % of All BOAs
10	105,700	160,610	65.8%	0.9%	0.6%	0.3%
11	120,857	194,020	62.3%	1.0%	0.6%	0.4%
12	136,446	221,498	61.6%	1.2%	0.7%	0.5%
13	148,504	249,093	59.6%	1.3%	0.8%	0.5%
14	161,782	276,632	58.5%	1.5%	0.9%	0.6%
15	173,032	299,769	57.7%	1.6%	0.9%	0.7%
16	187,092	336,893	55.5%	1.8%	1.0%	0.8%
17	196,560	360,837	54.5%	1.9%	1.1%	0.9%
18	206,469	399,828	51.6%	2.1%	1.1%	1.0%
19	215,400	425,651	50.6%	2.3%	1.2%	1.1%
20	225,215	462,827	48.7%	2.5%	1.2%	1.3%

- 3.2 The cumulative percentage curves provided in section 3 (Graph 1) of the Transmission Company analysis suggests a diminishing efficiency by increasing CADL. It appears that Fast Reserve BOAs of 5-10 minutes duration have a similar number of occurrences as those of Non-Fast Reserve. However, the greatest difference between fast and Non-fast reserve BOAs occurs for those of 11-15 minutes of duration. Following its peak for the 6-10 minutes duration, the count of Fast Reserve BOAs for higher duration decreases rapidly. Hence, it does not seem necessary to increase the CADL. Regarding a decrease in the limit, the table

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accompanying Graph 1 shows that only 52% of the Fast Reserve BOAs would then be captured, CADL would be less effective.

Graph 1: Number of fast and Non-Fast Reserve BOAs between one and 40 minutes duration



3.3 As highlighted in the analysis:

- The number of fast reserve BOAs peaked in the 5 to 10 minute duration category
- The number of non-fast reserve BOAs peaked in the 10 to 15 minute duration category
- The current CADL limit of 15 minutes flagged 70% of Fast Reserve BOAs over the assessment period
- The current CADL limit of 15 minutes flagged 24% of Non-Fast reserve BOAs over the assessment period

3.4 The data remains consistent with the previous review presented to the ISG in March 2010. Overall the analysis demonstrates that the 15 minute duration of the CADL remains suitable.

4. Next step

4.1 Our analysis suggests that no change in the value of CADL is needed. Hence, we have not recommended a consultation to the Industry. You are invited to provide comments on the analysis included in this paper and make a recommendation to the BSC Panel for its October 2014 meeting.

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5. Recommendations

5.1 We invite you to:

- a) **NOTE** the analysis presented in this paper;
- b) **RECOMMEND** to the BSC Panel that no change is made to the CADL; and
- c) **AGREE** that ELEXON conduct the next schedule review in two years' time.

Attachments

Attachment A – National Grid Electricity Transmission – CADL Review

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